Helpful Tools

Notes

Center Punch Test

Use with WAC 296-807-150, Powder Actuated Fastening Systems

Do a center punch test with a hammer to determine the suitability of the base material for a powder actuated fastening. This test is relatively simple and can help you do a safe, successful fastening. Be sure to wear the appropriate eye protection when performing this test.

The test is done as follows:

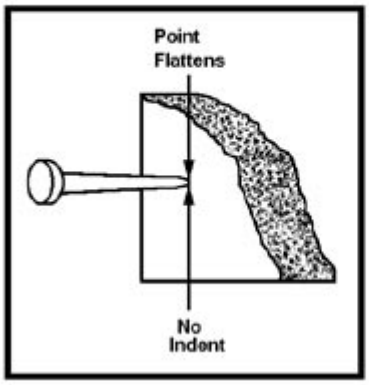
(1) Select the fastener to be used for the job.

(2) Place the point of the fastener against the base material.

(3) Strike the fastener with a single hammer blow, then examine the point. If the point of the fastener is not blunted and the base material has a clear point indentation, you can do the first test installation.

Use of a powder actuated fastening system is not recommended if the following occurs during the center punch test:

- The fastener point has been blunted. This indicates that the base material is too hard.



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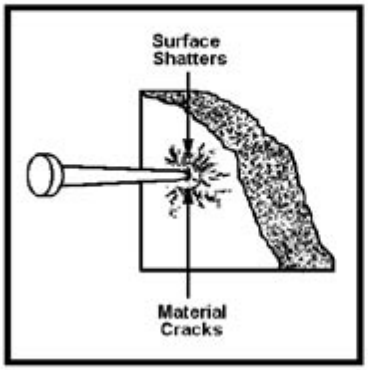
Resources

Center Punch Test

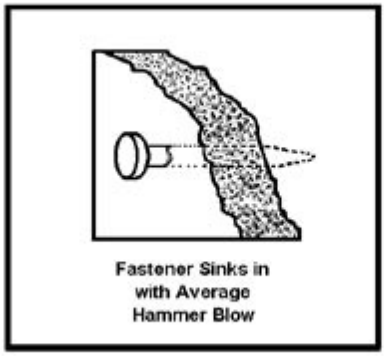
Use with WAC 296-807-150, Powder Actuated Fastening Systems

(continued)

- The base material cracks or shatters. This indicates that the base material is too brittle.



- When using an average hammer blow, the fastener penetrates the base material easily. This indicates that the base material is too soft.



Resources

Ring Test

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

A ring test should be performed before mounting an abrasive wheel. This test is simple and can help determine if the wheel is cracked.

Limitations:

The wheel has to be dry and free of sawdust when applying the ring test, otherwise the sound may be deadened.

The ring test doesn't work with certain wheels because of their shape or size.

Examples include:

- Wheels 4 inches diameter and smaller
- Plugs and Cones
- Mounted Wheels
- Segments
- Plate-Mounted Wheels
- Inserted Nut and Projecting Stud Disc Wheels

How to do the test:

(1) Suspend the wheel by putting a small pin or your finger through the arbor hole in the wheel. Heavier wheels may be allowed to rest in a vertical position on a clean hard floor (See Illustration 1).

(2) Tap the flat side of the wheel with a light non-metallic implement, such as the handle of a screw driver, at a point

- 45 degrees from the vertical center line on each side of the wheel (See Illustration 2)

  and

- 1 – 2 inches from the edge of the wheel. Large, thick wheels may be struck on the periphery rather than the side of the wheel.

(3) Rotate the wheel 45 degrees and repeat the test until the entire wheel has been checked.

-Continued-

Ring Test

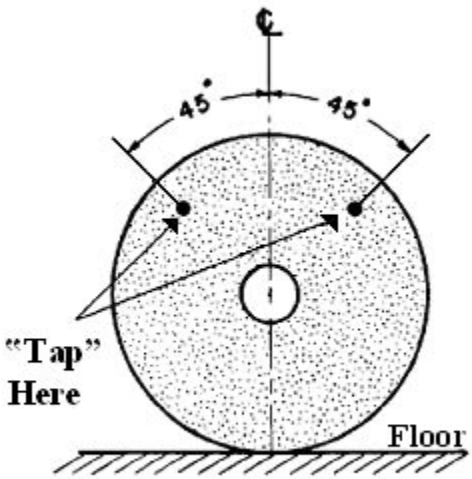
Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

How to use the results:

The ring test depends on the fact that a crack in the wheel will normally change the sound emitted when the wheel is lightly tapped. An undamaged wheel will give a clear tone. If cracked, there will be a dead sound and not a clear ring.

Comparison of the sound with other wheels of the same lot and specification will allow rejection of any wheel with a suspiciously different ring.



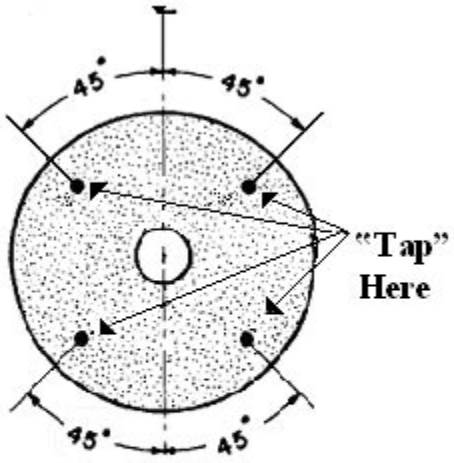
Heavy Wheels
Support on clean hard floor

-Continued-

Ring Test

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)



Light Wheels
Support on clean hard floor
small pin or finger

Resources

Abrasive Wheel Illustrations

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

This tool contains illustrations of:

- Some specific types of wheels used in this chapter
- General types of flanges used with abrasive wheels
- Mounting of some specific types of wheels

Information about the wheel type includes a definition and may have notes concerning wheel use or limitations.

Information about mounting wheels lists only the mounting requirements.

You will find these illustrations in this tool:

-Continued-

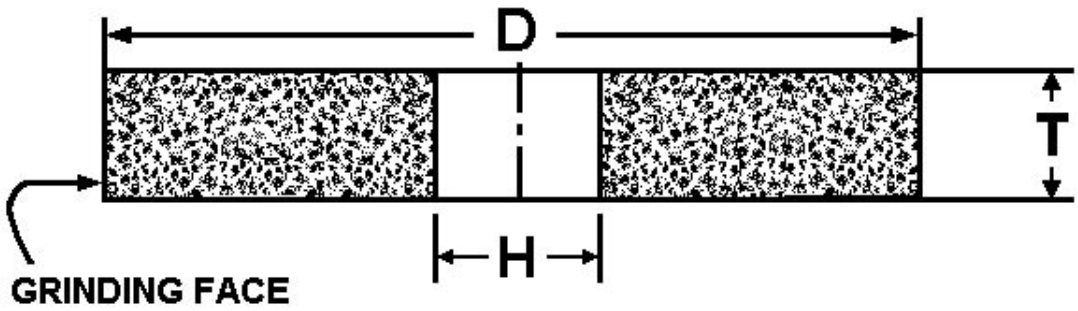
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Type 1 wheel

An abrasive wheel shaped like a disc with a mounting hole in the middle. Sometimes called a “straight wheel.” It has diameter (D), thickness (T), and hole size (H) dimensions. Grinding is normally done on the periphery (outside curve) of the wheel (T dimension).



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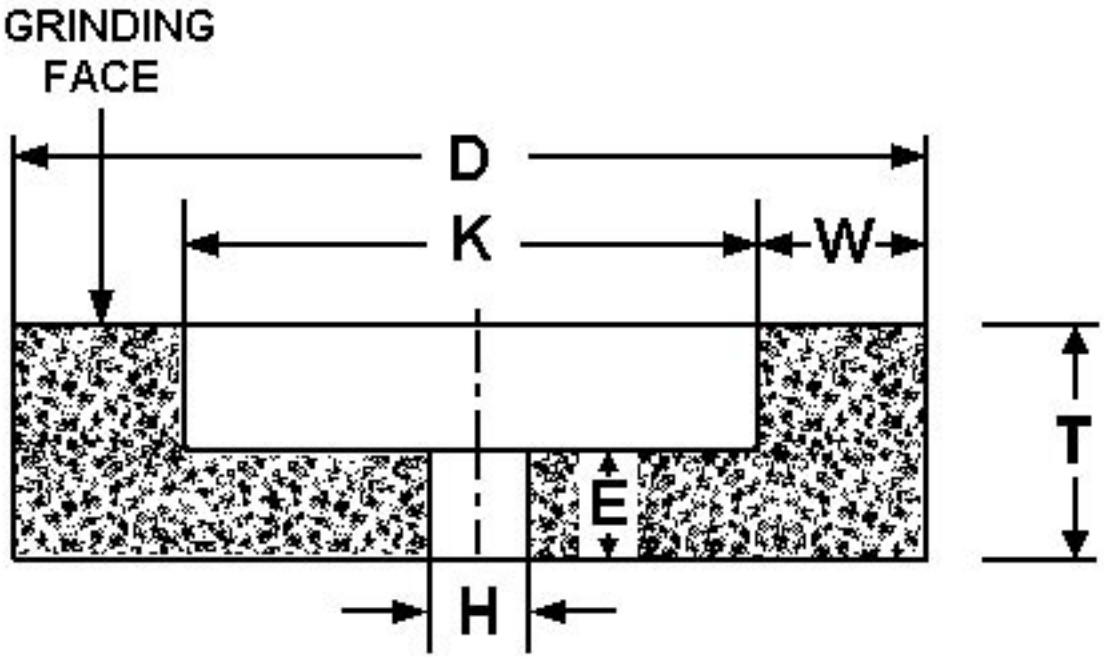
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Type 6 wheel

An abrasive wheel shaped like a straight-sided cup or bowl with a mounting hole in the bottom of the cup. Sometimes called a "cup wheel." It has diameter (D), thickness (T), hole size (H), rim thickness (W), and back thickness (E) dimensions. Grinding is normally done on the cup rim (W dimension).



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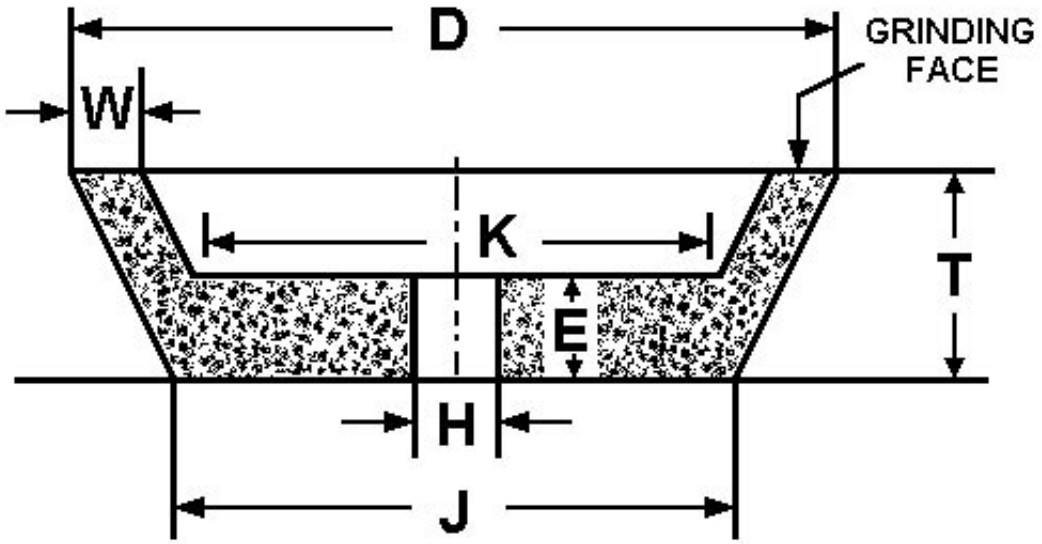
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Type 11 wheel

An abrasive wheel shaped like a cup or bowl with a mounting hole in the bottom of the cup. The sides of the cup are not straight-sided but are angled outward. Sometimes called a "flaring cup wheel" since the sides are "flared" out. It has double diameter dimensions (top D and bottom J). It also has thickness (T), hole size (H), rim thickness (W) and back thickness (E) dimensions. Grinding is normally done on the cup rim (W dimension).



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Resources

Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

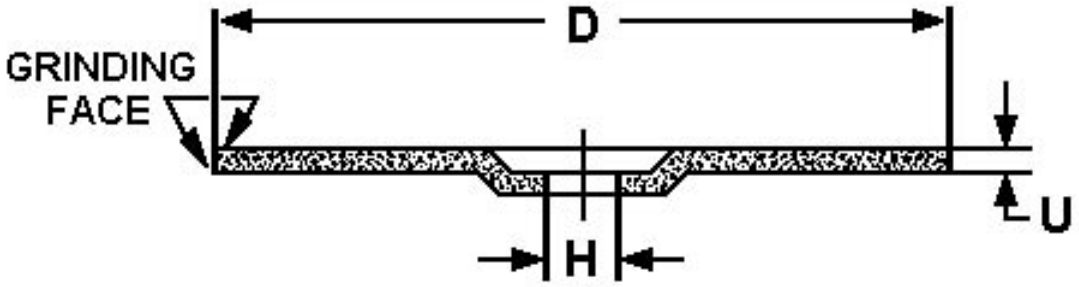
(continued)

Type 27 wheel

An abrasive wheel similar to a Type 1 wheel, but the center of the wheel around the mounting hole is pushed back (depressed). Sometimes called a "depressed center" wheel. It has diameter (D), thickness (U) and hole size (H) dimensions. The depressed center allows grinding on the flat surface of the wheel without interference from the flange or mounting hardware.

Type 27A cutting-off wheel

Similar to a Type 27 wheel. Specifically designed for use on cutting-off machines.



Note:

- Type 27 wheels are manufactured with flat grinding rims or faces and are designed for:
  - Side grinding when held at a slight angle to the workpiece
  - Peripheral grinding, including small cutting-off and shallow notching operations

- Type 27 wheels may be used flat when grinding masonry and concrete surfaces such as ceilings and walls.

-Continued-

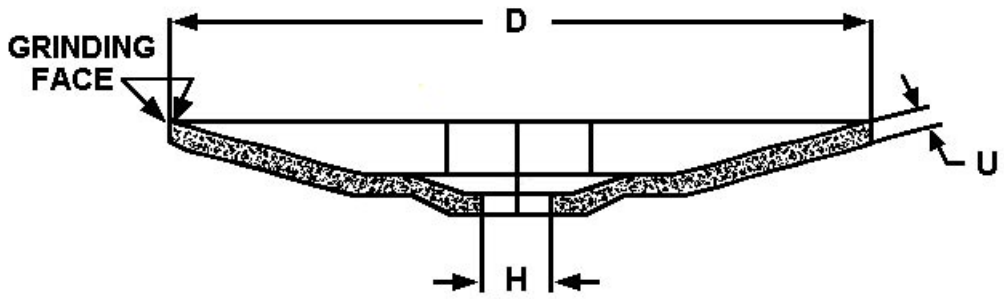
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Type 28 wheel

An abrasive wheel similar to a Type 27 wheel, but the face of the wheel is angled upward and away from the mounting hole. The face of a Type 27 wheel is flat and perpendicular to the mounting hole. A Type 28 wheel is also called a "depressed center" wheel. It has diameter (D), thickness (U) and hole size (H) dimensions. The depressed center allow grinding without interference from the mounting. A Type 28 wheel has a saucer-shaped grinding rim and is designed for corner grinding and side grinding.



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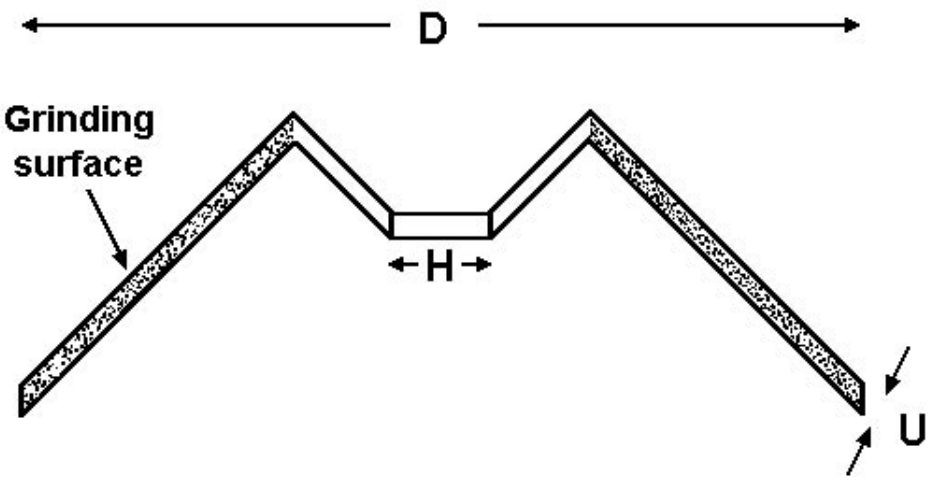
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Type 29 wheel

An abrasive wheel that has reversed, saucer-shaped grinding rims (similar to a partially opened umbrella).



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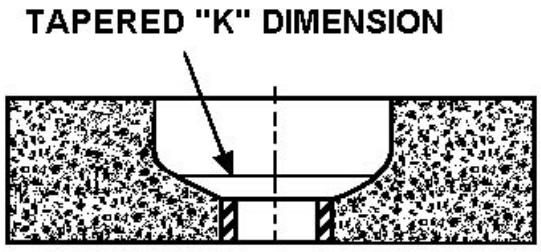
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

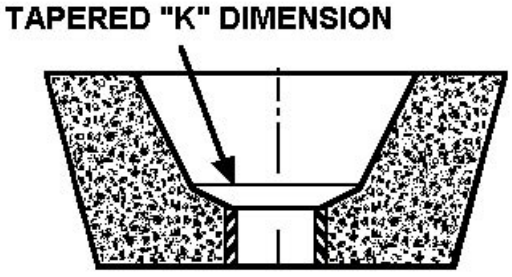
(continued)

Modified Type 6 and 11 wheels (Terrazzo)

Similar to Type 6 “straight cup” wheels and Type 11 “flaring cup” wheels except for the bottom of the cup. The bottom of the cup is flat in Type 6 and 11 wheels. The modified wheels have bottoms that are sloped downwards towards the mounting hole. These modified wheels need to be mounted using a special tapered flange furnished by the tool manufacturer. These wheels are used in the terrazzo trade.



TYPE 6 WHEEL (TERRAZZO)



TYPE II WHEEL (TERRAZZO)

-Continued-

Resources

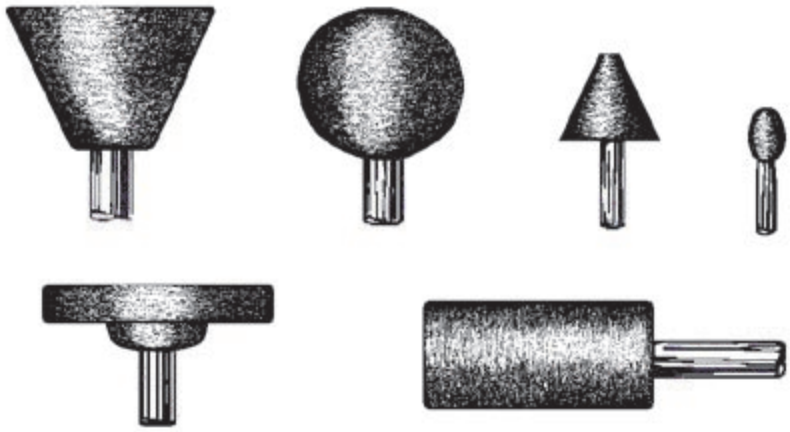
Abrasive Wheel Illustrations - Wheels

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Mounted wheels

Bonded abrasive wheels of various shapes, usually 2 inches diameter or smaller, that are secured to plain or threaded steel mandrels.



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Abrasive Wheel Illustrations - Wheels

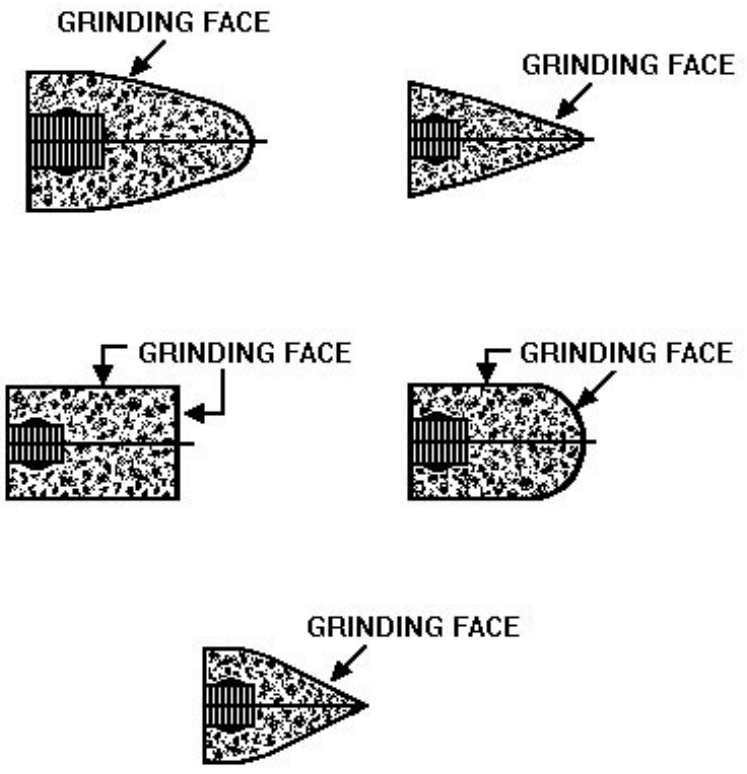
Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

Cone and plug wheels (Types 16, 17, 18, 18R, and 19)

Abrasive wheels manufactured with blind hole threaded bushings. They may be used on all surfaces except the flat mounting surface (D). Specific characteristics of the different cone and plug wheels are:

- Type 16 cone wheels have a curved side with a nose radius
- Type 17 cone wheels have straight sides with or without a nose radius
- Type 18 and 18R plug wheels are cylindrical in shape with either a square or curved grinding end
- Type 19 cone wheels are a combination of cone and plug shapes



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Abrasive Wheel Illustrations - Flanges

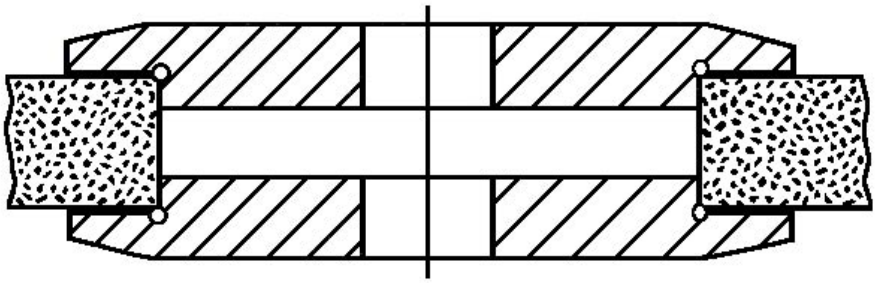
Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

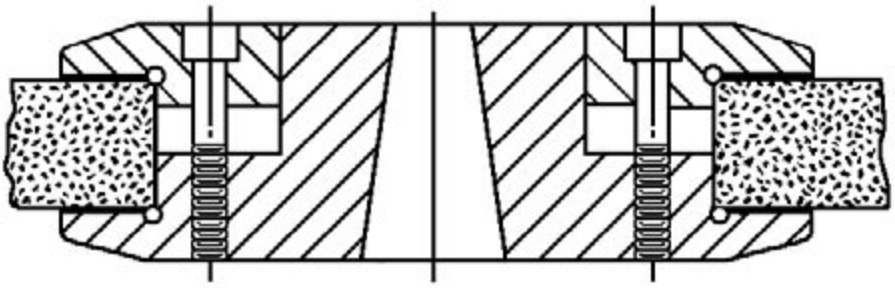
Flanges

Collars, discs or plates between or against which wheels are mounted. There are four types of flanges:

- Adaptor
- Sleeve adaptor
- Straight relieved
- Straight unrelieved



ADAPTOR FLANGE



SLEEVE ADAPTOR FLANGE

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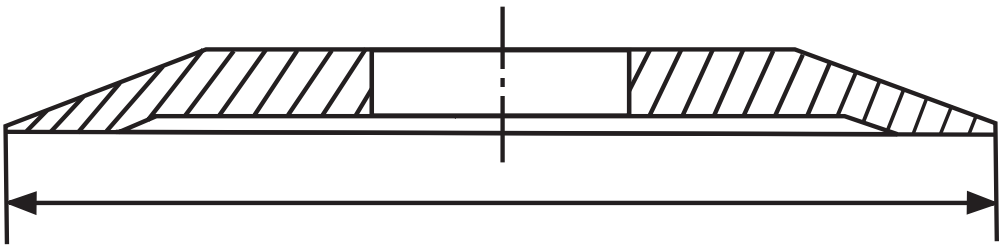
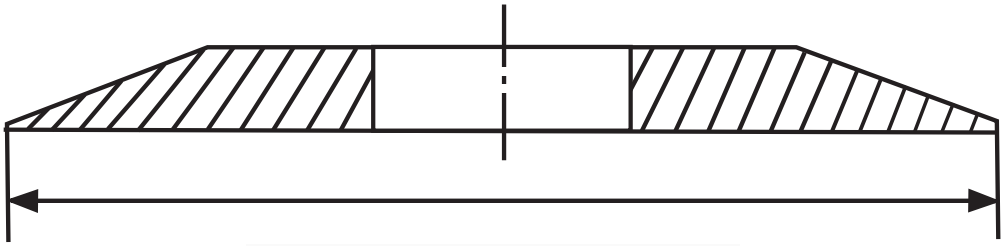
Abrasive Wheel Illustrations - Flanges

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)



STRAIGHT RELIEVED FLANGE



STRAIGHT UNRELIEVED FLANGE

-Continued-

Abrasive Wheel Illustrations - Mounting

Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

(continued)

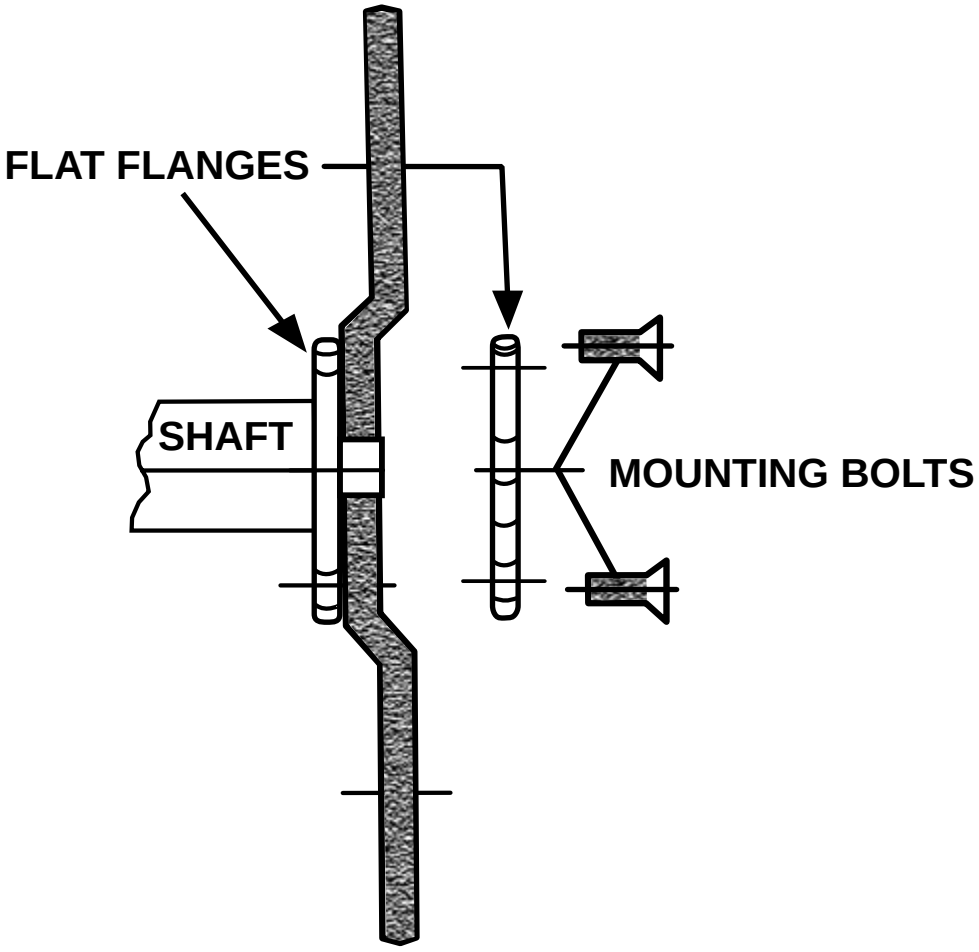
Mounting Type 27A cutting-off wheels

Type 27A cutting-off wheels are mounted between flanges that are:

- Flat (unrelieved) with matching bearing surfaces

  and

- At least 1/4 the wheel diameter



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Abrasive Wheel Illustrations - Mounting

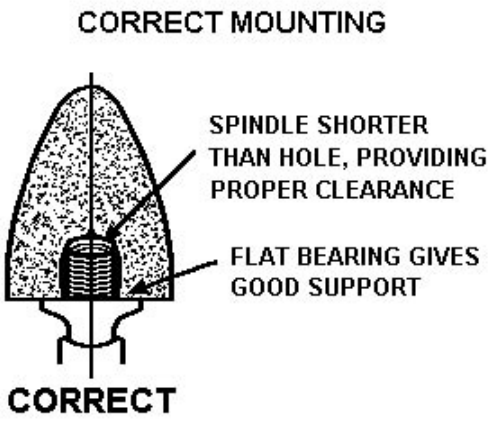
Use with WAC 296-807-180, Portable Tools Using Abrasive Wheels

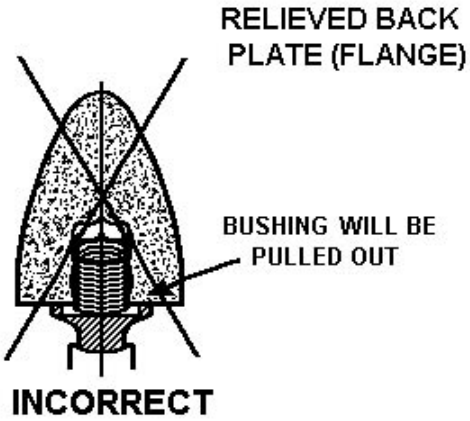
(continued)

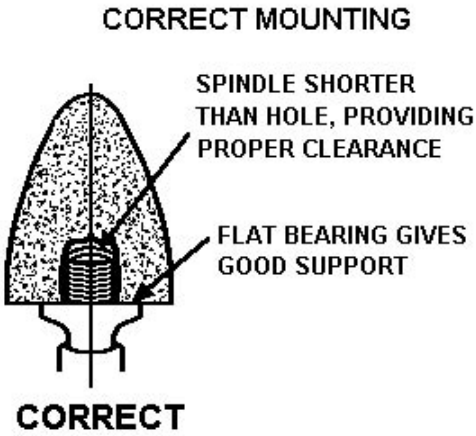
Mounting threaded hole wheels

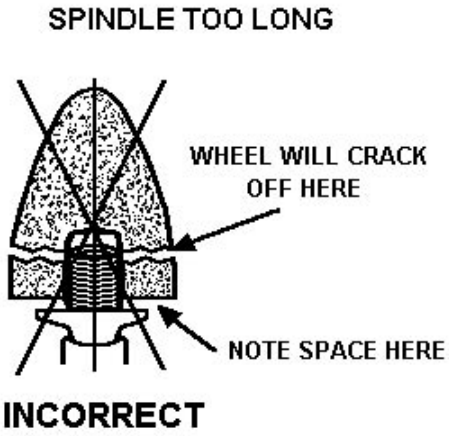
Threaded hole wheels are mounted against a back flange that is:

- Flat (unrelieved)
- Securely fastened and square to the spindle axis
- Able to properly support the wheel









Resources